

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,510,685 B2

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APPLICATION NO. : 10/556017

DATED : March 31, 2009

INVENTOR(S) : Torsten Muller, Stefan Hummel and Annette Pfennig

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The title page should be deleted and substitute therefor the attached title page.

Delete Figures 1, 2, 3, 5 and 6 and replace with the Figures 1, 2, 3, 5 and 6 as shown on the attached pages.

Signed and Sealed this

Second Day of June, 2009



JOHN DOLL
Acting Director of the United States Patent and Trademark Office

(12) United States Patent
Müller et al.(10) Patent No.: US 7,510,685 B2
(45) Date of Patent: Mar. 31, 2009

(54) PARTICLE INJECTOR FOR A CELL SORTER

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(75) Inventors: Torsten Müller, Berlin (DE); Stefan Hummel, Haseldorf (DE); Annette Pfennig, Berlin (DE)

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(73) Assignee: Evotec Technologies GmbH (DE)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 386 days.

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§ 371 (c)(1),
(2), (4) Date: Jan. 23, 2006

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May 9, 2003 (DE) 103 20 870

(51) Int. Cl.
B01L 3/00 (2006.01)

(52) U.S. Cl. 422/99

(58) Field of Classification Search 422/99
See application file for complete search history.

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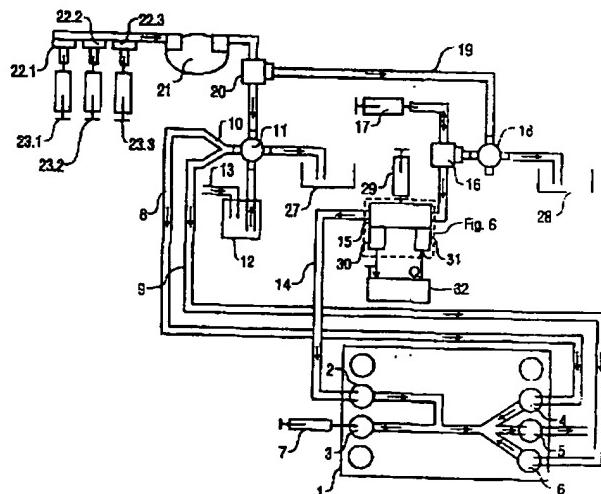
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ABSTRACT

The invention relates to a particle injector for introducing particles into a carrier flow of a microfluidic system, especially for injecting biological cells into the carrier flow of a cell sorter. The particle injector includes an inlet for receiving the carrier flow, an outlet for discharging the carrier flow including the introduced particles, a carrier flow channel which connects the inlet to the outlet, and an injection channel flowing into the carrier flow channel for introducing the particles into the carrier flow. The inventive particle injector is characterized in that the carrier flow channel has substantially no dead volume.

21 Claims, 12 Drawing Sheets

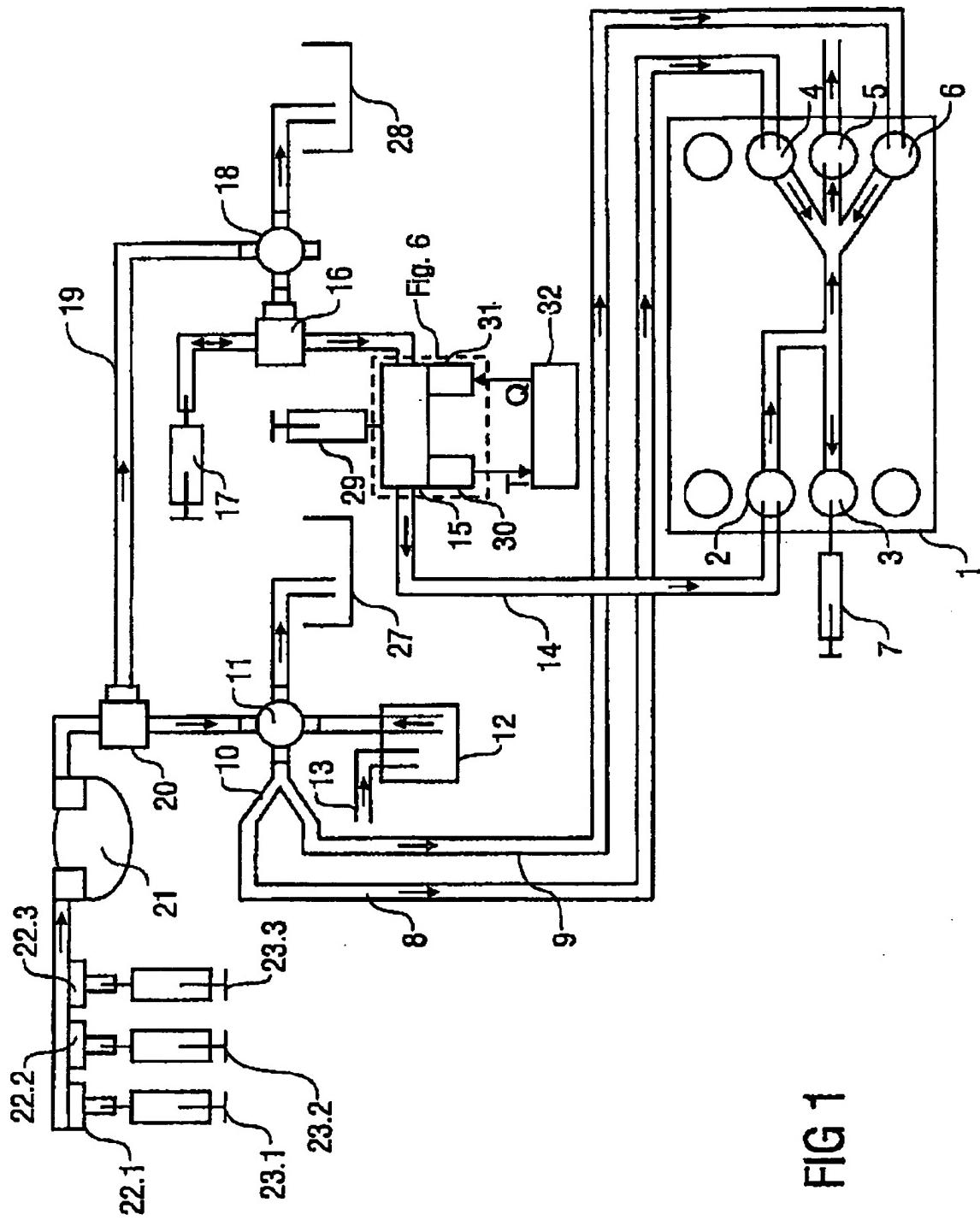


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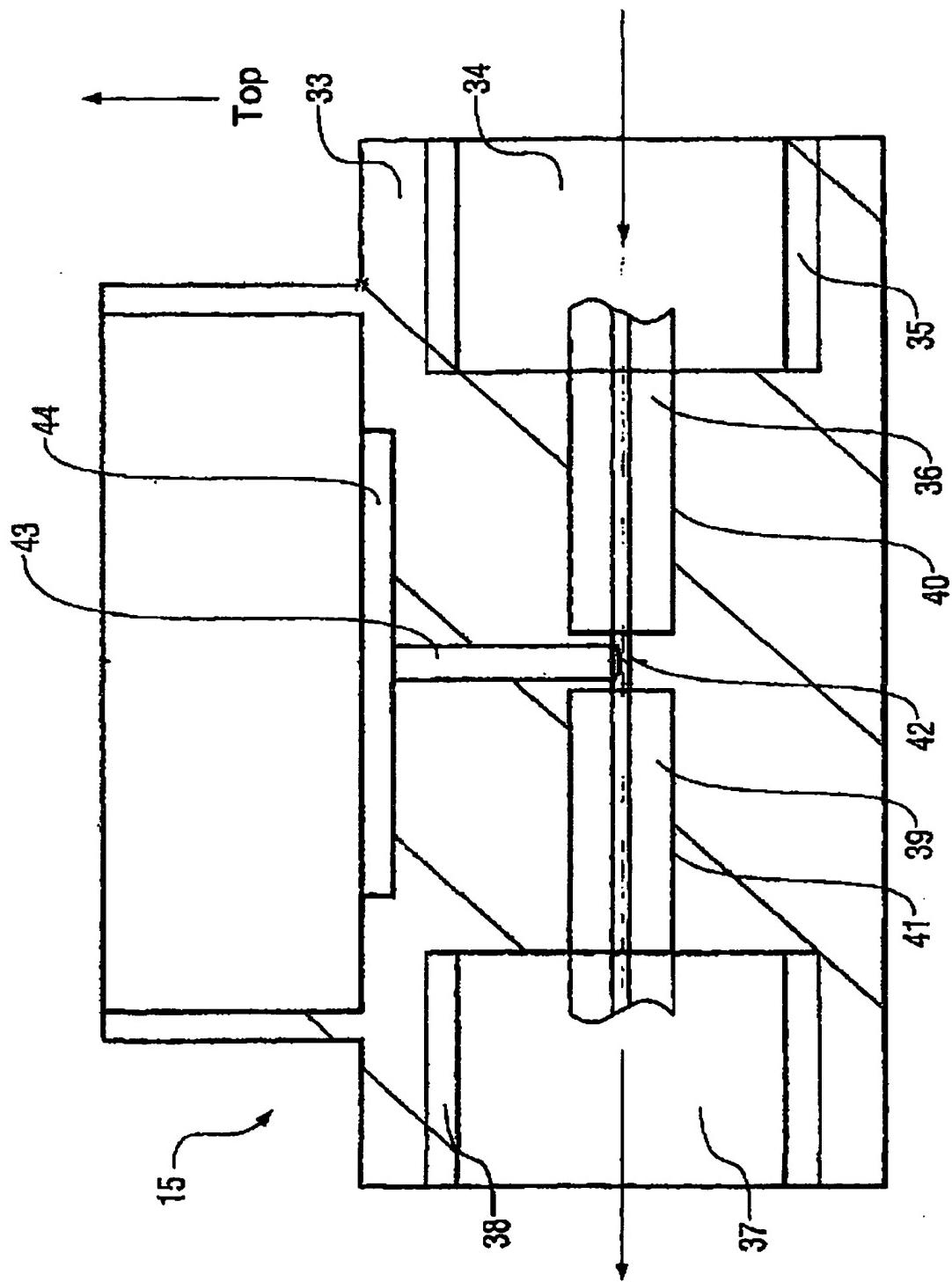


FIG 2

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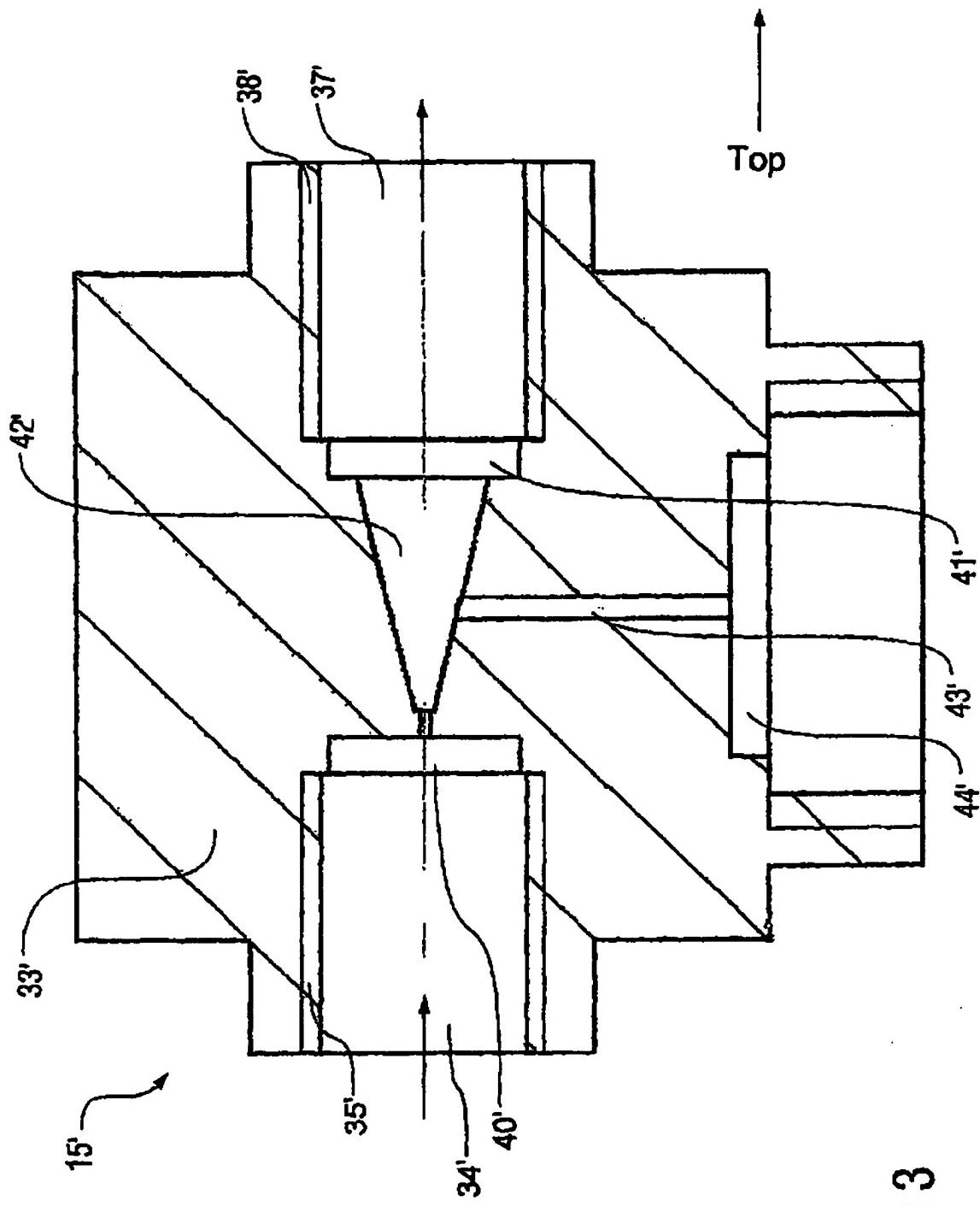


FIG 3

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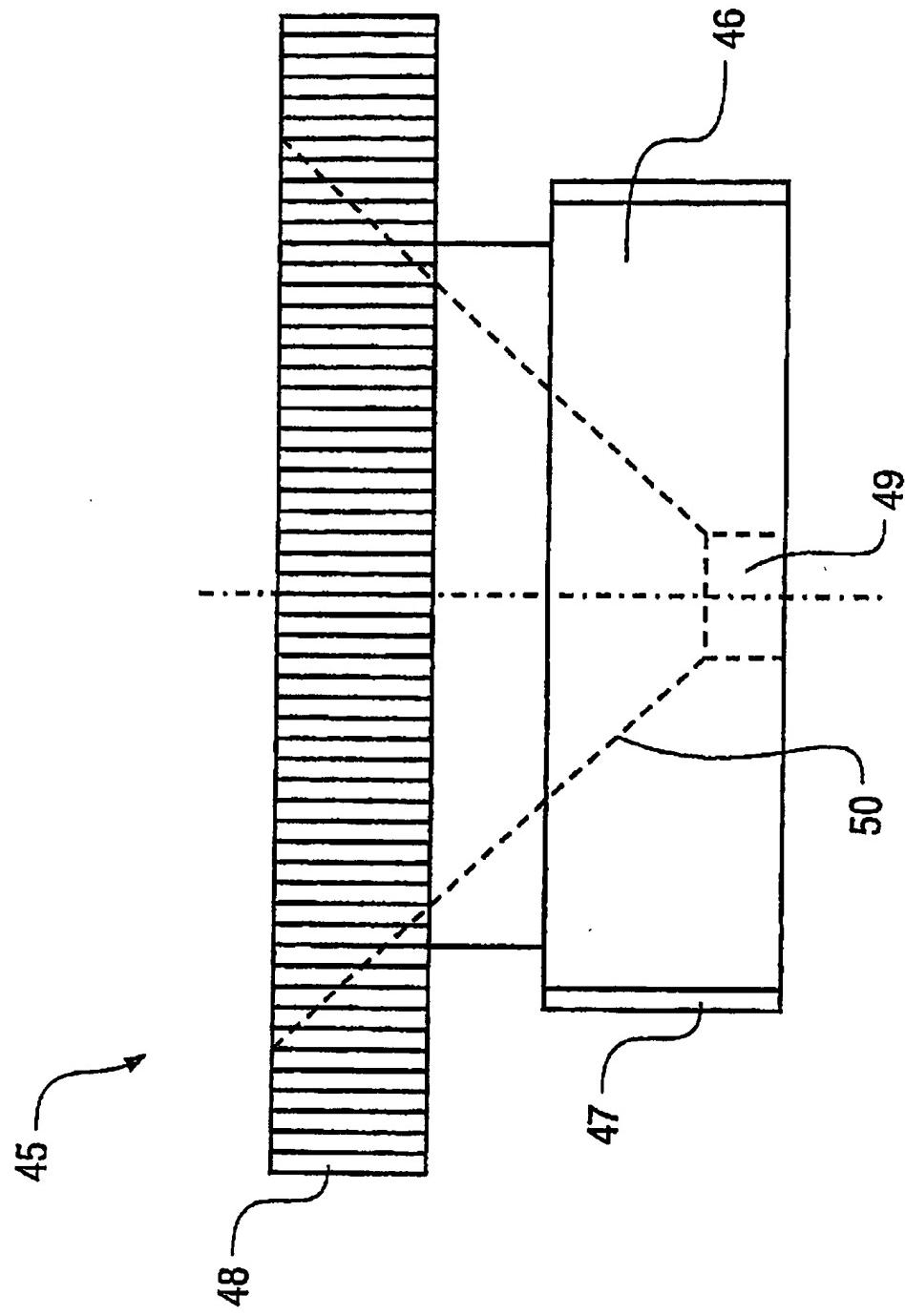


FIG 5

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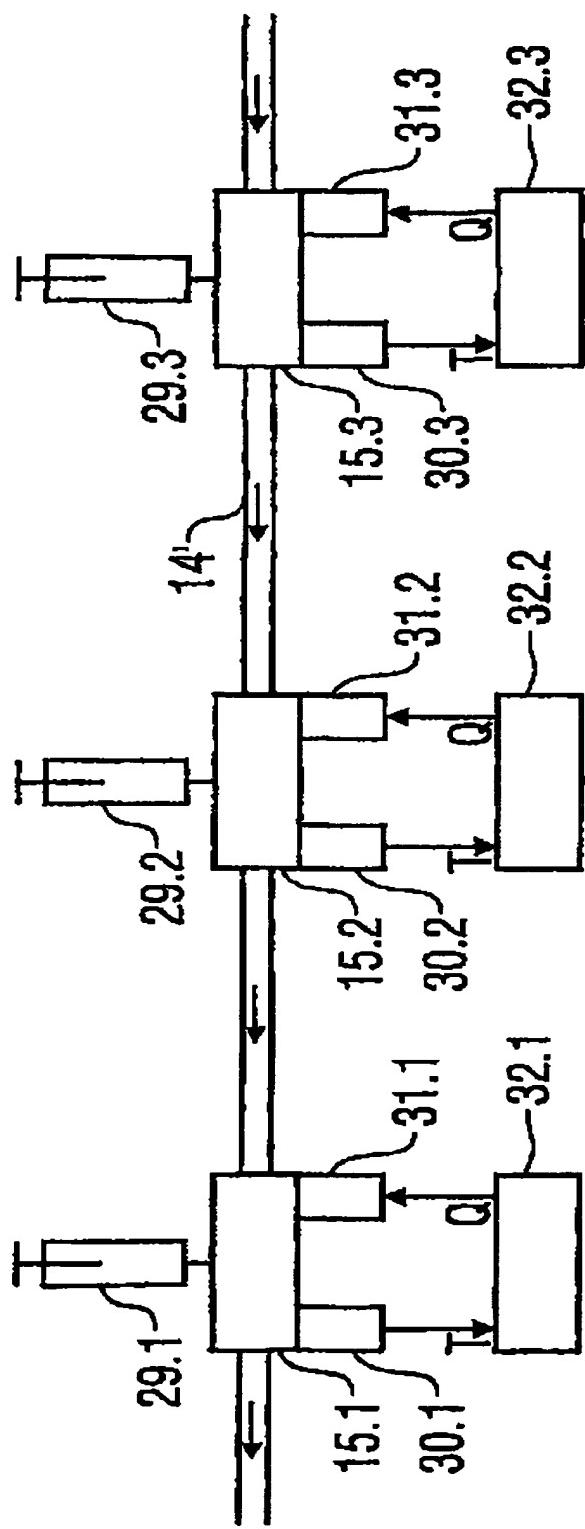


FIG 6